

CLAIMS

Subj.

1. In a conventional over the highway truck or tractor vehicle having a forwardly located engine and hood, an improved engine air intake system comprising:

- 5 a) the hood having a generally vertical side portion defining an air inlet;
- b) an apertured grating secured to the hood and positioned in the inlet;
- c) a flow diverting wall mounted within the hood and positioned in a generally vertical orientation when the vehicle is in use;
- 10 d) the wall being spaced from and generally parallel to the inlet to define a part of a relatively large initial portion of an air flow path from the inlet to the engine and to divert upwardly air flowing inwardly from the inlet;
- e) the wall being spaced from an upper part of the hood, the spacing between the wall and the hood upper part being less than the spacing between the wall and the inlet to define a water separating choke in the air flow path; and,
- f) structure providing a conduit delineating a portion of the path, the conduit communicating the choke with the engine.

2. The intake system of Claim 1 further including other structure delineating a water collection and disposal trough beneath the initial portion of the path.

3. The system of Claim 1 wherein the grating further comprises:

- a) an endless flange surrounding the grating apertures and disposed around the hood inlet;
- b) a perimetral section around the flange and extending outwardly from an outer part of the flange in aligned relationship with a surface of the

hood side portion; and,

c) an endless skirt extending inwardly from the inner circumference of the flange outer part such that in planes of cross section the flange and skirt delineate "v" configurations.

4. The system of Claim 3 wherein the grating apertures collectively form an air intake opening and the skirt defines the perimeter of the air intake opening and wherein baffles extend across the air intake opening, each baffle being connected at its ends to the skirt.

5. The system of Claim 3 wherein the grating further includes integrally molded clips securing the grating to the hood.

6. The system of Claim 3 wherein the flange and skirt define a gasket receiving recess and wherein a gasket is in the recess, the gasket providing a water seal between the grating and the vehicle hood and around the air inlet.

7. ~~A grating for use in an opening in the side of a vehicle hood, the opening being for an engine air intake in a conventional over the highway truck or tractor, the grating comprising:~~

- a) an endless flange surrounding an inlet and adapted to be disposed around such a hood opening;
- b) a perimetral projection around the flange and extending outwardly from an outer part of the flange, the perimetral section being for aligned relationship with a hood surface when the grating is in use;
- c) an endless skirt extending inwardly from the inner circumference of the flange outer part such that in planes of cross section the flange and skirt delineate "v" configurations;
- d) the skirt defining the perimeter of the inlet;
- e) baffles extending across the inlet each baffle being connected at

- its ends to the skirt; and,
- 15 f) fastening means for securing the grating to a vehicle hood.
8. The grating of Claim 7 wherein the fastening means are integrally molded clips spaced from the outer part and projecting from the flange in a direction away from the outer part.
9. The grating of Claim 7 wherein the flange and skirt define a gasket receiving recess for receipt of a gasket to effect a water seal around the air inlet and between the grating and a vehicle hood when the grating is in use.
10. The system of Claim 9 wherein the flange is a perimetral flange extending inwardly from the outermost part, the flange being adapted to be spaced from a part of a vehicle hood when in use to delineate a water entrapment space circumscribing such water seal.
11. The grating of Claim 7 wherein the flange has a base and a forward section extending upwardly and rearwardly from the base when the grating is in use.
12. The grating of Claim 7 wherein each of the baffles slopes downwardly and rearwardly from an end which is a forward one of its ends when the grating is in use.
13. The grating of Claim 12 wherein in each of the baffles also slopes inwardly and downwardly from an outer side edge to an inner side edge when the grating is in use.
14. In an over the highway conventional truck or tractor an improved air

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intake system comprising:

- a) a pivotally mounted engine hood having a top and two side portions, the hood portions defining an inverted squared "u" configuration in transverse cross section, the hood being pivotal between closed and engine access positions;
- b) one of the side portions including a smooth outer surface having a through air intake opening, the opening being defined by a perimetral hood flange extending inwardly from the outer surface;
- c) a self securing grating secured in the opening and including flange and skirt recess portions defining a perimetral gasket recess;
- d) a gasket in the recess and in engagement with the hood flange, the gasket providing an endless water seal around the opening;
- e) the grating having outermost surfaces disposed essentially in an imaginary extension of a contour generated by said side portion outer surface;
- f) the grating having baffle portions each having spaced ends connected to one of the recess portions, the baffle portions delineating air intake passages therebetween; and,
- g) structure delineating an air flow and water separation passage extending from the intake passages to an engine, the structure including:
 - i) a flow diverting wall spaced from and generally paralleling said one side portion when the hood is in its closed position;
 - ii) the wall being spaced from the hood top portion to define a choke in said air flow passage; and,
 - iii) separable parts defining a section of the air flow passage between the choke and the engine when the hood is in its closed position and being separable to enable movement of the hood from its closed to its engine access position.

~~15.~~ The system of Claim ~~14~~ further including a water collection trough beneath a portion of the passage between the grating and the wall.

~~9~~ 16. The system of Claim ~~15~~ wherein the trough has fore and aft outlet drains.

~~10~~ 17. The system of Claim ~~14~~ wherein the grating flange portion is a perimetral flange extending inwardly from the outermost surfaces, the grating and hood flanges being spaced to delineate a water entrapment space circumscribing said water seal.

~~11~~ 18. The system of Claim ~~17~~ wherein the grating flange has a base and a forward section extending upwardly and rearwardly from the base.

~~12~~ 19. The system of Claim ~~14~~ wherein each of the grating baffles slopes downwardly and rearwardly from a forward one of ~~its~~ ends.

~~13~~ 20. The system of Claim ~~19~~ wherein in each of the baffles also slopes inwardly and downwardly from an outer side edge to an inner side edge.

~~14~~ 21. The system of Claim ~~14~~ wherein the separable parts include a flexible tubular boot of corrugated configuration.

~~16~~ 22. The system of Claim ~~21~~ wherein a cage is mounted in an outlet opening of the boot.

23. A method of separating water from air being supplied to an over-the-highway truck or tractor vehicle engine during operation of the vehicle in inclement weather, the method comprising:

a) passing air through inlets of a grating positioned in a side opening of an engine hood;

b) as air is passing through the grating;

i) trapping surface water flowing along the hood in a water

~~entrapment space surrounding the inlets substantially to prevent entrainment of the hood surface water in the air passed through the inlets; and,~~

- 10 ii) allowing grating baffles to intercept water entrained in the passing air thereby separating the intercepted water from the passing air;
- c) diverting air flow from the inlets upwardly in a space within the hood and thereby causing further water separation from the flowing air; and,
- 15 d) passing the upwardly flowing air through a choke whereby to cause further water separation.

24. The method of ~~Claim 23~~ further including the step of collecting gravity deposited water in a collection trough below said space and draining water from the collection trough.

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